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DEPARTMENT OF TRANSPORTATION

Pipeline and Hazardous Materials Safety Administration

[Docket No. PHMSA-2013-0136]

Pipeline Safety: Potential for Damage to Pipeline Facilities Caused by Flooding

AGENCY: Pipeline and Hazardous Materials Safety Administration (PHMSA); DOT.

ACTION: Notice; Issuance of Advisory Bulletin.

SUMMARY: PHMSA is issuing this advisory bulletin to all owners and operators of gas and hazardous liquid pipelines to communicate the potential for damage to pipeline facilities caused by severe flooding. This advisory includes actions that operators should consider taking to ensure the integrity of pipelines in case of flooding.

FOR FURTHER INFORMATION CONTACT: Operators of pipelines subject to regulation by PHMSA should contact the appropriate PHMSA Regional Office. The PHMSA Regional Offices and their contact information are as follows:

- Central Region: 816-329-3800
Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin
- Eastern Region: 609-989-2171
Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia
- Southern Region: 404-832-1147
Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, Puerto Rico, South Carolina, and Tennessee
- Southwest Region: 713-272-2859
Arkansas, Louisiana, New Mexico, Oklahoma, and Texas

- Western Region: 720-963-3160

Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming

Intrastate pipeline operators should contact the appropriate state pipeline safety authority.

A list of state pipeline safety authorities is provided at: www.napsr.org

SUPPLEMENTARY INFORMATION:

I. Background

Section 192.613(a) of the Pipeline Safety Regulations (49 CFR Parts 190-199) states that

“[e]ach operator shall have a procedure for continuing surveillance of its facilities to determine and take appropriate action concerning changes in class location, failures, leakage history, corrosion, substantial changes in cathodic protection requirements, and other unusual operating and maintenance conditions.” Section 192.613(b) further states that “[i]f a segment of pipeline is determined to be in unsatisfactory condition but no immediate hazard exists, the operator shall initiate a program to recondition or phase out the segment involved, or, if the segment cannot be reconditioned or phased out, reduce the maximum allowable operating pressure in accordance with § 192.619(a) and (b).”

Likewise, § 195.401(b)(1) of the Pipeline Safety Regulations states that “[w]hen an operator discovers any condition that could adversely affect the safe operation of its pipeline system, it must correct the condition within a reasonable time. However, if the condition is of such a nature that it presents an immediate hazard to persons or property, the operator may not operate the affected part of the system until it has corrected the unsafe condition.” Section 195.401(b)(2) further states that “[w]hen an operator discovers a condition on a pipeline covered

under [the integrity management requirements in] § 195.452, the operator must correct the condition as prescribed in § 195.452(h).” Severe flooding is the kind of unusual operating condition that can adversely affect the safe operation of a pipeline and require corrective action under §§ 192.613(a) and 195.401(b).

PHMSA has released five Advisory Bulletins on this subject with the earliest issued July 29, 1993 (ADB-93-03), and the most recent Advisory Bulletin (ADB-11-04) on July 27, 2011, 76 FR 44985, each of which followed an event that involved severe flooding that affected pipelines in the areas of rising waters. Three of the more notable events are briefly described below:

On August 13, 2011, Enterprise Products Operating, LLC discovered a release of 28,350 gallons (675 barrels) of natural gasoline into the Missouri River in Iowa. The rupture, according to the metallurgical report, was the result of fatigue crack growth driven by vibrations in the pipe from vortex shedding.

On July 1, 2011, ExxonMobil Pipeline Company experienced a pipeline failure near Laurel, Montana, resulting in the release of 63,000 gallons of crude oil into the Yellowstone River. The rupture was caused by debris washing downstream in the river damaging the exposed pipeline.

On July 15, 2011, NuStar Pipeline Operating Partnership, L.P. reported a 100-barrel anhydrous ammonia spill in the Missouri River in Nebraska. The 6-inch-diameter pipeline was exposed by scouring during extreme flooding.

As shown in these previous events, damage to a pipeline may occur as a result of additional stresses imposed on piping by undermining of the support structure and by impact and/or waterborne forces. Washouts and erosion may result in loss of support for both buried and exposed pipelines. The flow of water against an exposed pipeline may also result in forces sufficient to cause a failure. These forces are increased by the accumulation of debris against the pipeline. Reduction of cover over pipelines in farmland may also result in the pipeline being struck by equipment used in farming or clean-up operations.

Additionally, the safety of valves, regulators, relief sets, and other facilities normally above ground or above water is jeopardized when covered by water. This threat is posed not only by operational factors, but also by the possibility of damage by outside forces, floating debris, current, and craft operating on the water. Boaters involved in rescue operations, emergency support functions, sightseeing, and other activities are generally not aware of the seriousness of an incident that could result from their craft damaging a pipeline facility that is unseen beneath the surface of the water. Depending on the size of the craft and the pipeline facility struck, significant pipeline damage may result.

Though these accidents account for less than one percent of the total number of pipeline accidents, the consequences of a release in water can be much more severe because of the threats to drinking water supplies and potential environmental damage.

II. Advisory Bulletin (ADB-2013-02)

To: Owners and Operators of Gas and Hazardous Liquid Pipeline Systems.

Subject: Potential for Damage to Pipeline Facilities Caused by Severe Flooding.

Advisory: Severe flooding can adversely affect the safe operation of a pipeline. Operators need to direct their resources in a manner that will enable them to determine the potential effects of flooding on their pipeline systems. Operators are urged to take the following actions to prevent and mitigate damage to pipeline facilities and ensure public and environmental safety in areas affected by flooding:

1. Evaluate the accessibility of pipeline facilities that may be in jeopardy, such as valve settings, which are needed to isolate water crossings or other sections of a pipeline.
2. Extend regulator vents and relief stacks above the level of anticipated flooding, as appropriate.
3. Coordinate with emergency and spill responders on pipeline location and condition. Provide maps and other relevant information to such responders.
4. Coordinate with other pipeline operators in the flood area and establish emergency response centers to act as a liaison for pipeline problems and solutions.
5. Deploy personnel so that they will be in position to take emergency actions, such as shut down, isolation, or containment.
6. Determine if facilities that are normally above ground (e.g., valves, regulators, relief sets, etc.) have become submerged and are in danger of being struck by vessels or debris and, if possible, mark such facilities with an appropriate buoy and Coast Guard approval.
7. Perform frequent patrols, including appropriate overflights, to evaluate right-of-way conditions at water crossings during flooding and after waters subside. Determine if flooding has exposed or undermined pipelines as a result of new river channels cut by the flooding or by erosion or scouring.

8. Perform surveys to determine the depth of cover over pipelines and the condition of any exposed pipelines, such as those crossing scour holes. Where appropriate, surveys of underwater pipe should include the use of visual inspection by divers or instrumented detection. Information gathered by these surveys should be shared with affected landowners. Agricultural agencies may help to inform farmers of the potential hazard from reduced cover over pipelines.
9. Ensure that line markers are still in place or replaced in a timely manner. Notify contractors, highway departments, and others involved in post-flood restoration activities of the presence of pipelines and the risks posed by reduced cover.

If a pipeline has suffered damage, is shut-in, or is being operated at a reduced pressure as a precautionary measure due to flooding, the operator should advise the appropriate PHMSA regional office or state pipeline safety authority before returning the line to service, increasing its operating pressure, or otherwise changing its operating status. Furthermore, reporting a Safety Related Condition as prescribed in §§ 191.23 and 195.55 may also be required.

Issued in Washington, DC on July 8, 2013.

Jeffrey D. Wiese,
Associate Administrator for Pipeline Safety.

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